solves itself into luxuriant headings of foliage. Inwrought with these are medallions, containing the Christian monogram, and the evangelical emblems, and pendant from the foliated arches are escutcheons, on which are depicted symbols of our Lord's passion. The tracery of the window is chiefly occupied by angels bearing scrolls inscribed with Scriptural texts. The artist who designed and executed these windows, and who superintended the other improvemnts is Mr. Warrington, of London. —— The extensive river-side property of Messrs. Cookson, situate at South Shields, having recently passed into the hands of the wealthy and influential firm of Messrs. Swinburne and Co., in which Mr. George Hudson, the eminent railway director, is the principal partner, the scheme for constructing deep and capacious docks within Jarrow slake, and adjoining Mr. Hudson's purchase, is about to be revived under auspices that ensures its complete and rapid success.——The Round Church at Cambridge was re-opened on the 10th inst. It appears that the incumbent is responsible for nearly 300*l.* for alterations and improvements made since the stone altar case was decided, and for the liquidation of which he solicits assistance. —— The marble statue of Dr. Goodall, the late provost of Eton, by Mr. Henry Weeks of Pimlico, was placed last week upon a marble pedestal on the south side of the ante-chapel of Eton College. The late provost is represented in a sitting posture, with an open book in his left hand, resting on his knee, the right hand being slightly raised as in the attitude of reading aloud, and his left foot resting on a raised cushion. The work is what may be termed a "seven-feet-six-inch figure," but the venerable deceased being in a sitting posture, the height of the statue is not more than above five feet. The pedestal bears a Latin inscription, said to be from the pen of the Rev. Dr. Hawtrey, the head master of Eton school.——The old market house at Epping, which was erected about the time Queen Elizabeth renewed the charter for the market, was entirely removed last week, in accordance with the expressed wish of the inhabitants. It had been for a long time in a decayed and even dangerous state.——A lunatic asylum is about to be erected for the county of Wilts, the cost of which will be 31,750*l.* —— The Manchester Parks' Committee have made a fourth purchase of the Walness estate, which immediately adjoins the Lark-hill property. The four purchases stand thus;—1. Lark-hill, 7 acres, 4,500*l.*; 2. Endhamham, 30 acres, 7,250*l.*; 3. Bradford-park, 31 acres, 6,200*l.*; 4. Walness-meadows, 25 acres, 5,875*l.* Total 23,825*l.* —— The committee of the privy council for education have made a grant of 1,000*l.* towards the building of the training school at Durham, and the national society for the education of the poor have granted 300*l.* for the same purpose.—— It is in contemplation at Manchester to erect a new exchange by means of a company, said to raise 200,000*l.* for the purpose in 25*l.* shares. The *Manchester Courier* states, "We have had an opportunity of inspecting a drawing of the intended elevation, which, if carried out, will be a very great ornament to the town,—indeed, we have no building in Manchester that can at all be compared with it; it bears some resemblance in form to the Liverpool Custom House, but is altogether a very superior and handsome structure, of two stories. The site is at the upper end of Market-street, High-street, Canon-street, and Palace-street, covering Marsden-square, the whole of the shops, warehouses, and other property within those limits having to come down. The building is to form three sides of a square, having the open or principal front to face High-street; the open space in front of the centre and between the two wings will be a raised stone platform, to be approached by a handsome flight of steps from High-street, for the convenience of the congregated merchants and manufacturers during 'change hours. The news-room is to occupy the Market-street side of the square or wing, occupying two stories, thus forming a spacious and lofty room, lighted by three domes and the side-lights; the size of this room will be nearly the same as the large room at Exeter Hall, London, about 12,000 square feet; the approach to it is made by three entrances from Market-street. The centre of the building in both stories will be converted into offices, which will be let off for mercantile purposes. The northern, or Canon-street wing, will form a Stock Exchange, and a public mercantile sales room; above these rooms, on the second story, will be a large room of corresponding dimensions with the news-room in the other wing, which will be a public room applicable to the purposes of a large music-room, or public meetings, or it will be divisible into three rooms, as occasion may require.—— At Taunton, a committee has been formed for the purpose of improving the town. Suggestions are courted and may be addressed to the Editor of the *Taunton Gazette*.——The erection of a New Market is at the present time occupying the attention of the inhabitants of Coventry. There is scarcely another town in England possessing a similar population, viz., 31,000, that is so wretchedly off for market accommodation.——The subscriptions for erecting the proposed New Church in the district of St. Simon, in the out-parish of St. Philip and Jacob, Bristol, amounts already to nearly 500*l.* —— The owners of the late Suspension Bridge at Yarmouth have subscribed 50*l.* towards the fund now raising for the restoration of the venerable church of St. Nicholas, and the establishment of a National School in that town. Lord Woodhouse has sent 20*l.*, and a lady 100*l.* towards the same purposes. ——The foundation-stone of the new National School Rooms in St. Saviour's parish, Bath, was laid last week by the Rev. Dr. Stamer, rector of the parish, in the presence of a great concourse of persons, among whom were the architect, Mr. Wilson, and the builder, Mr. Freeman.——The railway tunnel at Bangor, through hard rock, has been commenced, and the superintending engineer has taken up his residence at Bangor Ferry. The site for the new bridge has been determined upon, but no decision has yet been come to respecting the kind of bridge to be thrown over the Menai Straits.

SETTING OUT RAILWAY CURVES.

Sir,—I for one am obliged by Mr. G. Hawkins' reply to "Amateur" upon the subject of railway curves, and hope he will not complain of my obtuseness in requiring a little more information; after stating the formula for the value of B D as being always equal to rad. $-\sqrt{\text{rad.}^2 - \text{sin.}^2}$, he says "and the same process will apply to any other required point in the curve, merely substituting the value of sin.^2 in the expression, as the distances in the tangent A T, increase from the point A. Perhaps he will be good enough to explain this, and how it is applicable (supposing B D to be laid off at the 1st chain) to the several distances squared off from the tangent at the 2nd, 3rd, 4th &c. chain to the 10th.

Again he says, further on, "the above method will be convenient, as it affords a facility for calculating tables for the versed sine of an arc of any radius from the one already obtained; for since the curvatures of circles vary inversely as their radii, a simple proportion will give the value of the versed sine of any other required."

I dare say he will think the proportion of my attainments simple enough—but I should feel more obliged by any explanation he may please to give, illustrating the same by an example in both cases, which perhaps might enable me to reduce the theory more readily to practice. I am Sir, &c.

Liverpool. N.

Referring to the diagram (Builder, July 26th), it is scarcely necessary to observe that in the expression radius $-\sqrt{\text{rad.}^2 - \text{sin.}^2}$, which is the trigonometrical value of the versed sine of an arc, sin.^2 represents the square of the distances measured on the tangent, A T, thus supposing A D to be equal to two chains, and the corresponding ordinate B D be required, it is merely necessary to substitute in the formula the value of A B or two chains for sine.^2 For instance in a curve of 80 chains radius B D = radius $-\sqrt{\text{rad.}^2 - \text{sin.}^2} = 80 - \sqrt{6400 - 4} = 80 - 79{\cdot}975 = {\cdot}025$ chains or 2·5 links.

The same process will give the ordinate for any other point, substituting in each case for sin.^2 the squares of whatever number of chains that point may be from the commencement A. Generally, the formula may be thus stated:—The ordinate is always equal to the radius of the curve, less the square root of the difference of the squares of the radius, and the distance measured on the tangent to the point where the ordinate is to be laid off.

With reference to the curvatures of circles varying inversely as their radii, it ought to have been stated, that although as an abstract proposition it is strictly correct, yet its use in the manner proposed is only to be recommended within certain limits, since the actual relation between the curvatures of two arcs, measured by their versed sines, is only mathematically true at the point of contact. The practical application of the principle, if not rigidly warranted, may however be adopted in arcs whose radii do not greatly differ, and where the sines are small compared with the radii—the error in such case not being appreciable, thus supposing it were required from the one above obtained at two chains, to find the ordinate corresponding to it for an arc of 78 chains radius—we have by the proposition before-stated the following proportion:—As 78 chains : 2·5 links :: 80 chains : 2·56 links—which only differs from the correct value by less than the one-hundredth part of a link.

Although implying additional time, it would, as the safer course, be better perhaps to calculate every separate ordinate according to the formula, and the labour may be much abridged by using an ordinary table of powers and roots.

The radii of railway curves being usually confined within certain limits, a table calculated by the above method for ordinates up to eight or ten chains might be prepared beforehand, and would save time and materially facilitate the subsequent work in the field.

It was before observed that usually it would be found convenient to recommence the operation at every 8 or 10 chains, and a method accordingly was suggested for setting out a new tangent to the curve. The following will perhaps be found in many respects superior to the one already given, as no ground is lost, and affords a better position for ranging the new line. Let D be the point from whence it is required to start with the new tangent, from A set off on A B a portion equal to $\frac{\text{A B}^2 \times \text{B D}^2}{2\text{ A B}}$; that is to say the sum of the squares of the last ordinate and the whole distance measured on the tangent, divided by twice the same distance. A line from the point so obtained ranged forward through D—the last point in the curve will be the new tangent required. G. Hawkins.

NEW WINDOW IN ST. JAMES'S CHURCH.

We are told that it is proposed to put up a *Gothic* stained-glass window in St. James's Church, Piccadilly, but hope our informant is in error. We abuse and scoff at those architects who, after the introduction of Italian architecture in England, disfigured our noble cathedrals and churches with Corinthian altar-pieces and Wyatt-knows-what organ screens, and yet would commit similar absurdities ourselves. Consistency is surely as necessary in an Italian building as in one of the pointed style, and we conjure the vestry or committee, who are said to be about to perpetrate this enormity, to pause before they write themselves down, "foolish." The neighbouring church of St. George, Hanover-square, should be a beacon to warn them: one such mistake in London at this date is surely enough.

Freemasons of the Church.—Aug. 12. The Rev. G. Pocock in the chair. The minutes of the last meeting were read and confirmed. The Rev. F. P. Pocock, Rev. John Pampillon, M.A., F.S.A., Messrs. Edward Baldock, G. R. Lewis, and John Britton, F.S.A., were elected members. Mr. William Curling exhibited some specimens of very early locks, manufactured during the middle ages. Mr. E. D. Price exhibited a rubbing of a beautiful brass, from Upper Hardres, Kent. A paper was read on the ancient baptismal fonts in England, comprising the origin and history of baptism, baptistries, chapter-houses, &c., copiously illustrated by numerous specimens from the several counties from actual admeasurement.

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